

Linking Information about the Library to the Library User Through Hypermedia

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ABSTRACT

Using the Macintosh SE® and HyperCard™, the Health Science Library at the University of Tennessee, Memphis has developed a computer-aided reference (CAR) station for use in answering common directional and instructional questions. The application consists of a home module, four information modules, and a help module. The four information modules include (1) a guided tour of library facilities (2) a description of library services and how to use them (3) finding the location of library materials and (4) instruction on how to use specific reference tools. The CAR Station was developed to serve two functions: (1) to give library users access to directional and instructional information when needed by providing an alternative means of reference assistance when the reference staff is busy or unavailable and (2) to help free the reference staff so that they can spend more time with those seeking in-depth help.

INTRODUCTION

Public Services librarians handle four basic types of questions: directional, instructional, factual, and research [1]. Directional questions can usually be answered without referring to a printed source. They include questions concerning library facilities, services and resources, e.g., "Where is *Index Medicus*?" or "Where are the photocopy machines?" Instructional questions involve teaching the library user how to use library resources, such as the card catalog, *Index Medicus*, or *Chemical Abstracts*. The librarian does not directly provide the information, rather the librarian aids the user in finding the information for himself. Factual questions can be answered by referring to general reference books, such as handbooks, dictionaries, directories, etc. For these, the user needs specific information, such as "What is the address of Dr. Brown?" or "What are cyclosporins?" Research questions involve searching a wide range of sources in order to satisfy the user's informational need. The answer is usually in the form of a bibliography, manually or computer generated.

One problem that reference librarians have encountered at the reference desk is the volume of directional and instructional questions, such that they cannot spend the needed time with those seeking in-depth help. Miller states the situation succinctly: "Too often dedicated librarians are forced to engage in triage, apportioning their time parsimoniously in order to give band-aid help to the greatest number, rather than in-depth help to the few" [2]. Faced with this situation libraries have been exploring new approaches for the provision of reference services. For more than a decade libraries have been offering library instruction classes that focused on the most frequently

asked questions. These sessions provide library users with information concerning library facilities, services and resources and information on how to use library resources. Various methods have been used to aid in instruction including the use of computers [3]. The Health Science Library at the University of Tennessee, Memphis used PLATO for computer-aided instruction in its library instruction classes until UT Memphis discontinued its use of the PLATO System [4]. The rationale for bibliographic instruction is that if the library user already has answers to his directional or instructional questions, the reference librarian can spend more time on his nonroutine questions. However, not all library users participate in these instructional sessions. A newer method is to provide different levels of service [5].

At the University of Tennessee, Memphis Health Science Library, three levels of information services are provided to users during weekday working hours. The staff at the circulation desk answers directional questions and questions concerning library services. Routine information questions are referred to a paraprofessional who staffs the nearby information desk. Instructional, factual and research questions that require interpretation or exploration are referred to the reference librarians. This arrangement works fairly well except when public services librarians are very busy or unavailable as in the evenings or on the weekends. In the evenings and on weekends, only one level of information service is provided by one library assistant, who staffs the circulation desk. Faced with this staffing situation, the public services librarians at the Health Science Library decided to explore using the computer as another tier in information services. This use of the computer is different from the use of computers in formal library instruction. Computer-aided instruction in the context of a course provides the user with information that he might need in the future. The function of computer-aided reference is to provide the user with specific information as the need arises.

PROJECT DESCRIPTION

The Apple Macintosh and HyperCard were selected to develop the computer-aided reference (CAR) application for use in answering common directional and instructional questions. HyperCard was chosen because it provides a means for linking both text and graphic information in a variety of ways without requiring the user to learn a sophisticated programming language. Existing instructional material from the library's bibliographic classes is being adapted for use in the instructional portion of the application. A workstation running this application is located on the main floor of the library. The application is self-explanatory and only requires the user to point and click a mouse to make selections.

The HyperCard CAR application consists of a home module, four information modules, and a help module. The home module welcomes the user to the library and invites the user to click on a button to begin (Figure 1). After brief introductory screens, the user is presented with the four main choices: "Show me around!", "What can you do for me?", "Where do I find...?", and "How do I use...?" (Figure 2). The first two modules are intended to orient a new user to the library, while the second two modules are intended to be used as needed.



Figure 1: Initial Welcome Screen

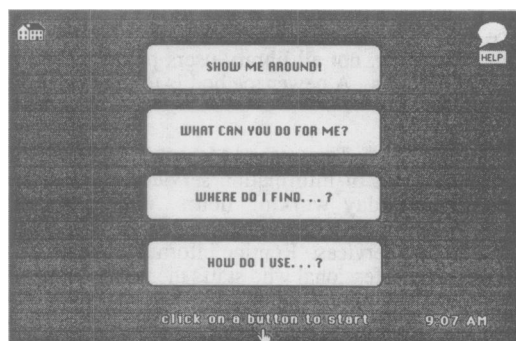


Figure 2: Main Menu

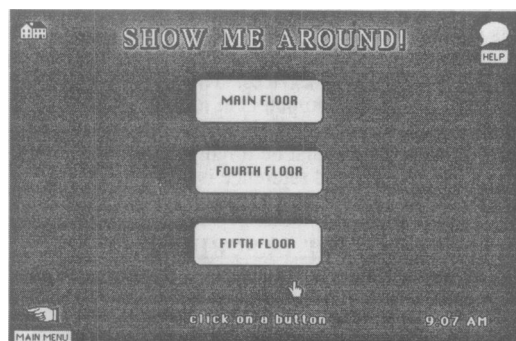


Figure 3: Library Tour Menu

If the user selects "Show me around!", a choice of the library floors is displayed (Figure 3). When the user clicks on a floor button, a floor map is presented. The user may click on any labeled area of the map for more information (Figure 4). In the "What can you do for me?" module, a selection of library services is displayed (Figure 5). When the user clicks on a selection, a brief description of the service is presented. The user may click on any starred word in the description for more

information (Figure 6). In the "Where do I find...?" module, library materials are grouped into main categories and subcategories displayed on different menus (Figure 7). A click on an item in the first menu brings up a display of subcategories

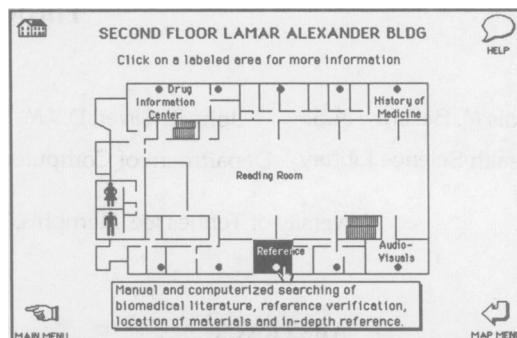


Figure 4: Library Tour Map

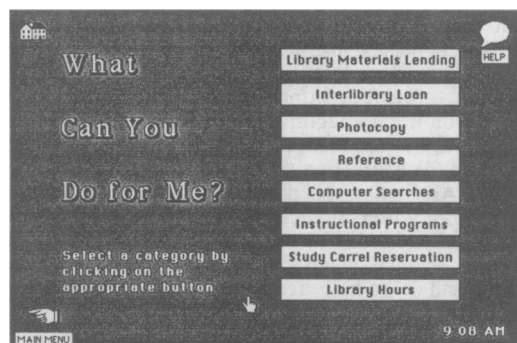


Figure 5: Library Services Menu

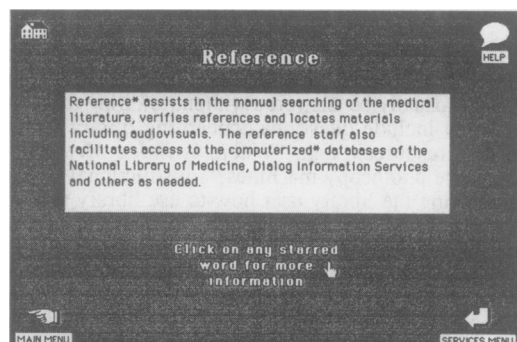


Figure 6: Description of Service

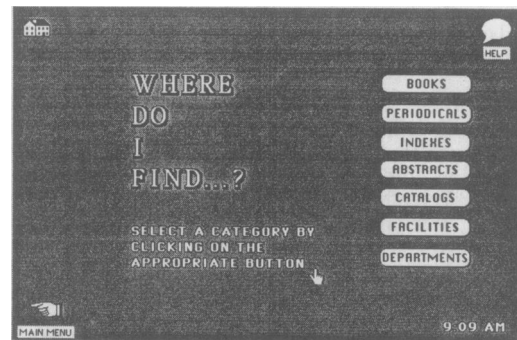


Figure 7: Materials Location Menu

in the second menu on the same screen (Figure 8). When the user chooses an item from the second menu, a map is displayed with the location of the material highlighted (Figure 9). The last

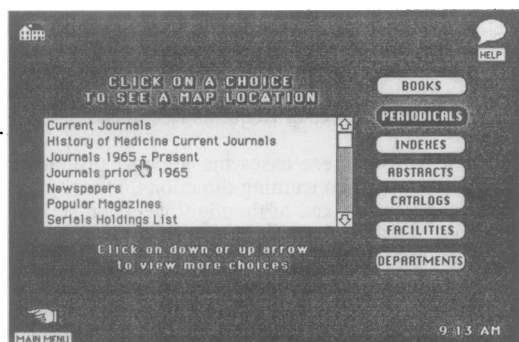


Figure 8: Materials Location Submenu: Periodicals

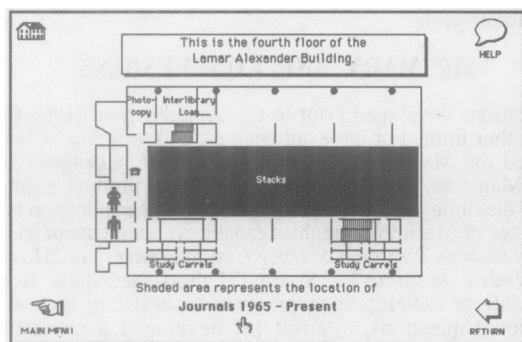


Figure 9: Map location of Library Materials

module, "How do I use...?", consists of tutorials on the use of reference aids such as *Index Medicus* (Figure 10). A click on *Index Medicus* results in a second menu display of instructional choices (Figure 11). All screens contain buttons to allow the user to navigate back to previous screens. Help buttons are available throughout the program for instruction on how to use the program. Each help button is specific for the screen on which it is located. Help consists of WHAT the screen is, HOW to use the screen, and OPTIONS for navigating to previous screens (Figure 12). The user can also discontinue the session at any time. If the user fails to click on the screen after a specified length of time, the program asks if the user is still there and if not, resets itself.

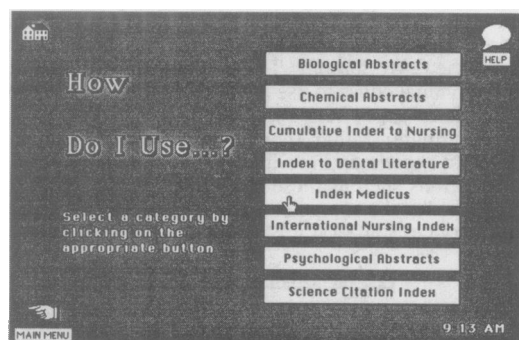


Figure 10: Tutorial Menu

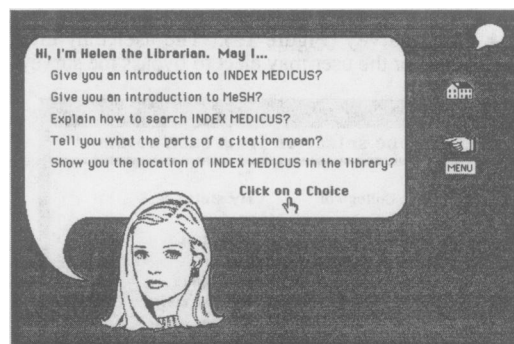


Figure 11: Index Medicus Menu

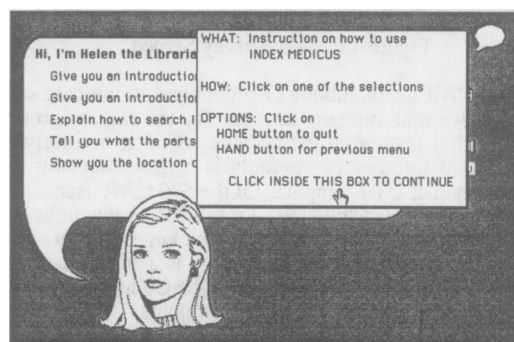


Figure 12: Help Box

USE OF THE CAR STATION

To evaluate the use of the CAR Station, data on the number of requests for directions, instructions, and information on library services and facilities were collected over a six-month period. Verbal requests were recorded manually by daytime staff at the information desk and in the reference office and by night/weekend staff at the circulation desk. The volume of routine information queries levied at the circulation desk during daytime hours prohibited data collection by the circulation staff. The CAR Station automatically records when and how the application is used.

Between October 10, 1988 when the Macintosh CAR Station was placed into service and April 12, 1989, the station was available for use for a total of 2118 hours. During that time 570 individuals used the station. Since there is less staff during the evening and weekend hours to help library users, it was thought that the station might receive more use during those times. Data were collected over a four-month period to determine what proportion of the night/weekend library users use the CAR Station and what proportion of the daytime library users use the CAR Station. It was found that the use of the CAR Station is slightly greater during the night and weekend. As shown in Table 1, 1.9% of the Night/Weekend Library Users used the CAR Station as opposed to 1.18% of the Daytime Library Users.

	CAR Users/hr	Library Users/hr	%Library Users Using CAR
Daytime	.28	24.12	1.18
Night/Weekend	.23	12.23	1.90

Table 1: Time of Day and CAR Use

When the CAR program is begun, the user has the option of answering a user survey (Figure 13). The user may click on status and college or the user may elect to bypass the survey.

Click on one selection from each column:

I am in the College of	My status is
<input type="radio"/> Allied Health <input type="radio"/> Dentistry <input checked="" type="radio"/> Graduate Health Science <input type="radio"/> Medicine <input type="radio"/> Nursing <input type="radio"/> Pharmacy <input type="radio"/> Social Work <input type="radio"/> None of the above	<input type="radio"/> Student <input type="radio"/> Staff <input checked="" type="radio"/> Faculty <input type="radio"/> House Staff <input type="radio"/> Other status

[Click here to go on](#)

Figure 13: User Survey Screen

Of the 570 CAR users, about 27% declined to indicate status. Table 2 shows that students account for the largest group of CAR users that registered their status. This is not surprising since the total number of students is larger than any other academic group at UT Memphis. Of the 570 CAR users, about 19% declined to indicate college. Table 3 shows that individuals in the College of Medicine account for the largest group of CAR users that registered their college. This is also not surprising since the total number of individuals in the College of Medicine is larger than any other college at UT Memphis.

STATUS	NUMBER	PERCENT
STUDENTS	197	34.56%
HOUSE STAFF	25	4.39%
FACULTY	71	12.46%
STAFF	46	8.07%
OTHER	76	13.33%
NONE INDICATED	155	27.19%
TOTAL	570	100.00%

Table 2: CAR User Status

COLLEGE	NUMBER	PERCENT
ALLIED HEALTH	27	4.74%
DENTISTRY	57	10.00%
GRADUATE HEALTH SCIENCES	54	9.47%
MEDICINE	133	23.33%
NURSING	47	8.25%
PHARMACY	42	7.37%
SOCIAL WORK	17	2.98%
NONE OF THE ABOVE	86	15.09%
NO COLLEGE SELECTED	107	18.77%
TOTAL	570	100.00%

Table 3: CAR User Department

As the user navigates through the screens in the CAR application, information is recorded concerning what screens and screen buttons have been used. Between October 19, 1988 and April 12, 1989, 1374 information queries were recorded at the CAR Station. Table 4 shows that requests for directions accounts for the largest proportion of the queries recorded at the CAR Station followed by requests for information concerning library services. During this period of time, a total of 3136 information requests were recorded manually by the staff and automatically by the computer. Requests for directions accounts for 1299 of the queries. Table 4 shows that half of these queries were recorded at the CAR Station. A total of 985 requests concerning library facilities and services were recorded. Again half of these queries were recorded at the CAR Station.

UNIT	DIRECTIONS	INSTRUCTIONS	SERVICES/ FACILITIES
CAR STATION	646	242	486
INFORMATION DESK	230	167	81
REFERENCE OFFICE	9	42	5
NIGHT/WEEKEND STAFF	414	401	413
TOTALS	1299	852	985

Table 4: Types of Requests Recorded

Notice that in both of these cases the greatest proportion of questions asked of staff concerning directions, library services, and library facilities is asked of the night/weekend staff at the circulation desk. Had it been possible for the daytime circulation desk staff to record requests for information, it is likely that the CAR Station would account for a smaller percentage of the total requests. A total of 852 requests for instructions were recorded. Table 4 shows that about a quarter of these requests were recorded at the CAR Station. One explanation for the lower use of the instructional module on the CAR Station could be that the instructional module of the CAR Station is not complete. Another might be that library users prefer to ask a person how to use a library tool.

SUMMARY AND CONCLUSIONS

Applications developed prior to the availability of HyperCard were either limited or have not been easy to program. Chaffin [6] used the Macintosh and several software packages (Slide Show Magician, MacDraw, and FullPaint) to produce a guided tour of the library at Washington College. This application takes advantage of Macintosh graphics capability, but it cannot answer a query such as "Where is *Science Citation Index*?" or "How do I use *Index Medicus*?" Smith [7] used the Apple II and Applesoft in developing a program to assist in answering directional questions. Parrott [8] developed a program to provide directional, instructional and factual information on the VAX using Digital's Courseware Authoring System (CAS). Both these applications required learning a programming language in order to combine graphics and text together. Parrott found that developing the graphics was a time-consuming process and that "CAS requires several seconds to paint a graphics screen of any complexity" [8]. Since the release of HyperCard in late 1987, several libraries have developed library tours and instruction using the Macintosh and HyperCard [9,10,11]. This indicates the ease of use that HyperCard extends to users for developing such applications. Development of the CAR Station was begun in December, 1987. The first month was spent in learning how to use HyperCard. The first three modules were completed in another five months. The first instructional stack for the fourth module took another six months to complete. Instructional stacks have been added as they are completed.

The data support the premise that the computer can function as an alternative means of information assistance for directional and instructional queries. Of the 3136 recorded queries, 1374 were recorded at the CAR Station. The data, however, do not reveal why the individual chose to use the CAR Station. Was there no one available to ask? Was the individual more comfortable asking a computer rather than library staff? Or was the individual just experimenting with the computer to see what was on it? Questions such as these would have to be answered to determine whether the computer is acting in a similar capacity as the public services staff or if it is acting in an expanded role.

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REFERENCES

- [1] L.W. McClure, "Reference services: policies and practices" in *Handbook of Medical Library Practice, Vol I*. Darling L., et al. (eds). Chicago, IL:Medical Library Association, Inc., pp. 137-181, 1982.
- [2] W. Miller, "What's wrong with reference: coping with success and failure at the reference desk," *American Libraries*, vol. 15, pp. 303-6,321-2, 1984.
- [3] E.B. Davis *et al.*, "A two-phased model for library instruction," *Bulletin of the Medical Library Association*, vol. 65, pp. 40-5, 1977.
- [4] J.M. Marcotte and K.J. Graves, "Library instruction within the medical record administration curriculum," *Bulletin of the Medical Library Association* vol. 69, pp. 240-6, 1981.
- [5] B.J. Shapiro, "Library reference service: an unrecognized crisis--Ongoing training and innovative structural approaches," *Journal of Academic Librarianship*, vol. 13, no. 2, pp. 75-6, 1987.
- [6] J. Chaffin, "Macintosh-assisted library orientation tour," *College & Research Libraries News*, June, pp. 332-4, 1987.
- [7] D.E. Smith, "The information station," *Small Computers in Libraries*, vol. 7, no. 6, pp. 26-7, 1987.
- [8] J.R. Parrott, "Expert systems for reference work," *Microcomputers for Information Management*, vol. 3, no. 3, pp. 155-71, 1986.
- [9] J. Oros, "In-the-library-stacks," *Apple Library Users Group Newsletter*, vol. 6, no. 2, pp. 18-23, 1988.
- [10] B. Vaccara, "HyperTours! Part 1," *Computers in Libraries*, vol. 9, no. 1, pp. 28-31, 1989.
- [11] J. Ertel and J. Oros, "A tour of the stacks: HyperCard for libraries," *Online*, vol. 13, no. 1, pp. 45-53, 1989.